THAT WHICH IS CLAIMED IS:

1.   Method for automatic control of the frequency of a local oscillator in a DS-CDMA type receiver, in which a known signal with spread frequency spectrum is received and is then transformed into a sampled digital signal formed of symbols and with despreaded frequency spectrum, a residual frequency error f_e is determined for each symbol, this error is filtered (FLT) and the frequency of the local oscillator (VCO) is corrected with this filtered error, characterized by the fact that the first determined residual frequency error f_{e1} is memorized, the average of the absolute values of a predetermined number of successive residual frequency errors is determined, this average is compared with a predetermined threshold, and if this average is greater than or equal to the said threshold, the local oscillator frequency is corrected using an error equal to $-\mathrm{sgn}(f_{e1})(1/T - |f_{e1}|)$, where sgn is the "sign" function, $|\quad|$ is the absolute value function and T is the duration of a symbol, before determining the next residual frequency error associated with the next symbol.

2.   Method according to claim 1, characterized by the fact that residual frequency errors are filtered digitally, and by the fact that if the average is greater than the said threshold, the memory of the digital filter (FLT) is set to zero before the next residual frequency error is filtered.

3.   Method according to either claim 1 or 2, characterized by the fact that residual frequency

errors are advantageously filtered with a first order matching filter (FLT).

4. Method according to claim 3, characterized by the fact that the current correction applied to the local oscillator is equal to (1-b) times the previous correction plus b times the current
5 residual frequency error, and that the coefficient b is chosen to be close to 1 if the current residual frequency error is greater than a first predetermined limiting value, whereas the coefficient b is chosen to be close to zero if the current residual frequency
10 error is less than a second predetermined limiting value.

5. Method according to claim 4, characterized by the fact that the said predetermined limiting value is equal to the symbol rate divided by 7.

6. Automatic device for controlling the frequency of a local oscillator in a DS-CDMA type receiver, comprising one input to receive a known signal with a spread frequency spectrum, pre-processing
5 means that can transform this signal into a sampled digital signal formed from symbols with a despreaded frequency spectrum, first calculation means for determining a residual frequency error (f_e) for each symbol, filter means (FLT) capable of filtering this
10 error, and correction means (CAN) to correct the frequency of the local oscillator (VCO) with this filtered error characterized by the fact that it also comprises a memory (MM) to store the first determined

residual frequency error f_{e1}, second calculation means
15   (MC2) for determining the average of the absolute
values of a predetermined number of successive residual
frequency errors, comparison means (COMP1) for
comparing this average with a predetermined threshold,
and if this average is greater than the said threshold,
20   the correction means correct the frequency of the local
oscillator with an error equal to $-\text{sgn}(f_{e1})(1/T - |f_{e1}|)$,
where sgn is the "sign" function, $|\ |$ is the absolute
value function and T is the duration of a symbol,
before the first calculation means (MC1) determine the
25   next residual frequency error associated with the next
symbol.

7.   Device according to claim 6,
characterized by the fact that the filtering means
comprise a digital filtering (FLT), and by the fact
that the device comprises control means (MCLT) that, if
5   the average is greater than a threshold, will reset the
memory of the digital filter (FLT) before filtering the
said next residual frequency error.

8.   Device according to claim 6 or 7,
characterized by the fact that filtering means comprise
a first order matching filter (FLT).

9.   Device according to claim 8,
characterized by the fact that the current correction
applied to the local oscillator is equal to (1-b) times
the previous correction plus b times the current
5   residual frequency error, and by the fact that the
coefficient b is chosen to be close to 1 if the current

residual frequency error is greater than a first predetermined limiting value, whereas the coefficient b is chosen to be close to zero if the current residual
10 frequency error is less than a second predetermined limiting value.

10.   Device according to claim 9, characterized by the fact that the said predetermined limiting value is equal to the sampling frequency divided by 7.

11.   DS-CDMA type receiver comprising a device according to one of claims 6 to 10.

12.   Receiver according to claim 11, characterized by the fact that it is a mobile cell phone.